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Examiner Name	Nawaz, Asad M.
Confirmation No.	7792
Docket No.	00121-000600000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Meyer et al.

Title: METHOD AND SYSTEM FOR DYNAMIC EXPANSION AND CONTRACTION OF NODES IN A STORAGE AREA NETWORK

<u>VIA EFS</u>

<u>APPEAL BRIEF</u>

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As required under 37 C.F.R. § 41.37(a), this Appeal Brief is being submitted in furtherance of the Notice of Appeal filed on September 24, 2009. The fees required under 37 C.F.R. § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF. This Appeal Brief contains items under the following headings:

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I.   **REAL PARTY IN INTEREST**

The present application has been assigned in an assignment recorded at Reel
015963, Frame 0680 to Network Appliance, Inc., now NetApp, Inc., a Corporation
established under the laws of the State of Delaware and having a principal place of
business at 495 East Java Drive, Sunnyvale, CA 94089, U.S.A..

II.   **RELATED APPEALS AND INTERFERENCES**

Appellant had previously filed a Notice of Appeal on August 20, 2008, a corresponding
Appeal on October 16, 2008 and updated Appeal Brief on April 17, 2009 considered
compliant by the Examiner. After reviewing the Appeal Brief, the Examiner found the
Appellant's Brief persuasive yet did not allow any claims and instead reopened
prosecution. In response, the Appellant has filed this Appeal Brief in furtherance of the
Notice of Appeal filed September 24, 2009 and requesting Reinstatement of Appeal
under MPEP 1204.01. Aside from the aforementioned Appeal Briefs, Appellant is
unaware of any other related appeals or interferences that may directly affect or be
directly affected by or have a bearing on the Board's decision in the present appeal.

III.   **STATUS OF THE CLAIMS**

Claim 1-28 are considered patentably distinct over U.S. Patent Publication No.
2002/0007445 to *Blumenau* (hereinafter "Blumenau") and other cited references by the
Examiner. No substantive rejections of claims 1-28 remain.

The Examiner now objects to Claims 1-28 as subject to a restriction under 35
USC 121 such that Class I includes claims 1-12 and 15-26 and Class II includes Claims
13-14 and 27-28.

Appellant appeals requesting the Board remand finding the claims in condition for allowance as no rejection has been provided on associated claims 1-28 set forth in the attached Appendix A.

IV.   **STATUS OF AMENDMENTS**

The amendments to the claims have all been entered and Appellant is unaware of any amendments filed after the Office Action mailed 07/24/2009 which alleges Claims 1-28 are now subject to a restriction requirement.

V.   **SUMMARY OF CLAIMED SUBJECT MATTER**

As a preface to the summary, it is useful to present the language and terminology of Storage Area Networks (SAN). SANs generally allows computer servers and other devices called "host servers" or "hosts" to connect to "storage devices" over a network. Host controller cards installed in the host allow the host to connect to other peripheral devices over a storage protocol like iSCSI. In a SAN, the host controller in the host may be directly connected to the host side of a storage controller or indirectly connected through the network. (Appellant's specification FIG. 1, paragraphs [0026]-[0028]) In contrast to the host controller, the storage controller is an intelligent controller that connects to one or more storage devices and virtualizes the storage. (Appellant's specification FIG. 1 paragraph [0029]) As indicated in the claims below, aspects of the present invention creates a logical storage controller that virtualizes the storage controller device itself.

Claims 1-28 are directed to a dynamic method and system for expanding and contracting nodes on a storage controller in a storage area networks. A single storage pool can be managed with multiple storage controllers configured and managed in accordance with the present invention as a single logical storage controller. Ports can be

added without increasing the number of storage islands being managed as ports are added in contiguous sequence with preexisting ports in the logical storage controller. Multiple new storage controllers entered into a logical storage controller contribute additional ports to the SAN while appearing as a single and larger storage controller. (Appellant's specification paragraph [0022])

Implementations of the present invention facilitate combining multiple storage controllers into a single larger logical storage controller. It can also be used to combine existing and older storage controllers with newer storage controllers. The logical storage controller construct implemented in accordance with the present invention accommodates different storage controllers through an application programming interface (API). This API is used to exchange database information between the various storage controllers pertinent to operation of the overall logical storage controller. The API even makes it possible for storage controllers using different databases to share important SAN configuration information and coexist. This API interface also enables customers to upgrade from an older model storage controller to a newer storage controller without having to remove the existing older storage controller model from the SAN. (Appellant's specification paragraph [0023])

Further, the present invention provides an increased reliability characteristic given hardware or software failures. In a logical storage controller containing n physical storage controllers the impact of failure from a storage controller can be reduced to approximately $1/n$. The larger logical storage controllers have significant improved performance and reliability due to the increased redundancies in ports and communication paths not previously available using conventional solutions. (Appellant's specification, paragraph [0024])

Separate Identification of Independent Claims:

Representative Independent Claim 1 describes a method for adding a storage controller node in a storage area network. To start, the method receives a storage controller node to add to a logical storage controller in the storage area network. The logical storage controller represents the existing one or more storage controllers that have

already been configured into the storage area network. For example, the logical storage controller may include a first storage controller having 8 ports identified as port 1 through port 8 and a predetermined node name of "10000000FFE00048" assigned to the first storage controller during manufacture (Appellant's Specification, Figure 3b, Figure 4 , paragraphs [0040], [0041], [0042]). An additional second storage controller to be added to the logical storage controller in this example also may have 8 ports but is assigned a predetermined nodename of "100000007BB00002" that differs from the nodename of the first storage controller (Appellant's Specification, Figure 3b, Figure 4 , Figure. 5, paragraphs [0040], [0041], [0042])..The corresponding portion of Claim 1 is recited as follows:

A method for adding a storage controller node in a storage area network, comprising:

receiving a storage controller node to add to a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports;

Next, the method adopts the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller. (Appellant's Specification, Figure 3b, Figure 4 , Figure. 5, paragraphs [0040], [0041], [0042]). In the above example, the method adopts the logical nodename of "10000000FFE00048" for the second storage controller because it is the logical nodename assigned to the logical storage controller arrangement. The corresponding portion of Claim 1 is recited as follows:

adopting the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller; and

Further, the method in Claim 1 renumbers a set of ports associated with the storage controller to extend the sequence of logical ports associated with the logical storage controller (Appellant's Specification, Figure 3b, Figure 4, Figure. 5, paragraphs [0040], [0041], [0042]). In this example, the method renumbers ports 1 through 8 in the

second storage controller to 9 through 16 giving the logical storage controller a contiguous sequence of ports ranging from 1 to 16. The corresponding portion of Claim 1 is recited as follows:

renumbering a set of ports associated with the storage controller to extend the sequence of logical ports associated with the logical storage controller.

Independent Claim 13 is distinct from other aspects of the invention as it concerns removing a storage controller node from a storage area network and is the counterpart operation to adding a storage controller as indicated in Claim 1. Accordingly, Claim 13 recites:

A method of removing a storage controller node in a storage area network, comprising:

removing a storage controller node from a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports;

deleting the set of ports associated with the storage controller removed from the sequence of logical ports associated with the logical storage controller; and

renumbering the sequence of logical ports to accommodate the deleted set of ports. (Appellant's Specification, Figure 3b, Figure 4, Figure. 5, paragraphs [0040], [0041], [0042] [0048][0049]).

Independent Claim 15 is distinct from other aspects of the invention as it concerns an apparatus for adding a storage controller node to a storage area network. Accordingly, Claim 15 recites:

An apparatus for adding a storage controller node in a storage area network, comprising:

a processor capable of executing instructions;

a memory containing instructions when executed on the processor receive a storage controller node to add to a logical storage controller having a logical nodename and a sequence of logical ports in the storage area network, adopt the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller and renumber a set of ports associated with the storage controller to extend the sequence of logical ports

associated with the logical storage controller. (Appellant's Specification, Figure 3b, Figure 4, Figure. 5, Figure 8, paragraphs [0040], [0041], [0042]).

Independent Claim 27 is distinct from other aspects of the invention as it concerns an apparatus for removing a storage controller node from a storage area network. Accordingly, Claim 27 recites:

An apparatus for removing a storage controller node in a storage area network, comprising:

a processor capable of executing instructions;

a memory containing instructions when executed on the processor remove a storage controller node from a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports, delete the set of ports associated with the storage controller removed from the sequence of logical ports associated with the logical storage controller ands renumber the sequence of logical ports to accommodate the deleted set of ports. (Appellant's Specification, Figure 3b, Figure 4, Figure. 5, paragraphs [0040], [0041], [0042] [0048][0049]).

The following listing provides a reference between each independent claim and some, but not necessarily all, paragraphs and figures in the specification:

Independent Claims 1, 13, 15 and 27 (Appellant's Specification, Figure 3b, Figure 4 , Figure. 5, paragraphs [0038]-[0049])

VI.   Grounds of Rejection to be Reviewed on Appeal

   A.   WHETHER THE EXAMINER MAY REOPEN PROSECUTION OF CASE AFTER APPEAL WITHOUT PROVIDING A REJECTION.

   B.   WHETHER ALLOWANCE OF CLAIMS 1 TO 28 CAN BE WITHHELD GIVEN THAT THE EXAMINER HAS FOUND APPLICANT'S ARGUMENTS PERSUASIVE AND NO FURTHER REJECTIONS PROVIDED.

VII.   ARGUMENT

Appellant respectfully traverses the reopening of prosecution of the pending claims, and requests that the Board find the pending claims allowable in light of the remarks contained herein. The claims do not stand or fall together. In fact, Appellant presents separate arguments for various independent and dependent claims. Each of these arguments is presented with separate headings and sub-headings, as required by 37 C.F.R. § 41.37(c)(1)(vii).

A.   EXAMINER MAY NOT REOPEN PROSECUTION WITHOUT PROVIDING A NEW GROUND OF REJECTION AND OTHERWISE COMPLYING WITH MPEP 1207.04

The procedure for the Examiner to reopen prosecution after appeal is described in MPEP 1207.04. At a minimum, it is a prerequisite for the Examiner to specify a new ground of rejection before the Appeal may be removed from the appellate process and prosecution continued. Moreover, the Examiner must receive written approval from a Supervisory Patent Examiner (SPE) to effectuate such an event. MPEP 1207.04 is reproduced below for convenience.

1207.04 REOPENING OF PROSECUTION AFTER APPEAL [R-3]

   THE EXAMINER MAY, WITH APPROVAL FROM THE SUPERVISORY PATENT EXAMINER, REOPEN PROSECUTION TO ENTER A NEW GROUND OF REJECTION AFTER APPELLANT'S BRIEF OR REPLY BRIEF HAS BEEN FILED. THE OFFICE ACTION CONTAINING A NEW GROUND OF REJECTION MAY BE MADE FINAL IF THE NEW GROUND OF REJECTION WAS (A) NECESSITATED BY AMENDMENT, OR (B) BASED ON INFORMATION PRESENTED IN AN INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(C) WHERE NO

STATEMENT UNDER 37 CFR 1.97(E) WAS FILED. SEE MPEP § 706.07(A). >ANY
AFTER FINAL AMENDMENT OR AFFIDAVIT OR OTHER EVIDENCE THAT WAS
NOT ENTERED BEFORE MUST BE ENTERED AND CONSIDERED ON THE MERITS.

    a. **EXAMINER MAY NOT REOPEN PROSECUTION AFTER APPEAL BASED
UPON A RESTRICTION REQUIREMENT AS THIS DOES NOT AMOUNT TO A
NEW GROUND OF REJECTION UNDER MPEP 1207.04**

In the most recent action, the Examiner indicated that claim 1-28 are subject to

restriction requirement and alleged two classes: Class I - claims 1-12 and claims 15-26 &

Class II – claims 13-14 & 27-28. (Page 2, paragraph 2 of Office Action dated July 24,

2009). The restriction requirement made by the Examiner does not address the substance

of the claims but rather asks that the group of claims be divided into two groups. If Class

I or Class II were elected, only the form of the claims would be changed as the election

would divide the claims into two different classes. In view of MPEP 706.01, the

restriction requirement would therefore be classified as an "objection" and not a

rejection, let alone a new ground of rejection, as it only affects the form of the claim.

Furthermore, the restriction requirement would also be consider an objection rather than a

rejection as a request to withdraw the restriction would not heard by the Board of Patent

Appeals and Interferences but by way of petition to Petitioner's Office. *See* MPEP 706.01

For at least this reason, the Appeal should be reinstated as the restriction

requirement is not a rejection within the meaning specified in MPEP 1207.04.

    b. **PROSECUTION MAY NOT BE REOPENED BY THE EXAMINER AS NO
WRITTEN APPROVAL BY THE SUPERVISORY PATENT EXAMINER HAS
BEEN PROVIDED**

In addition to a new ground of rejection, the MPEP 1207.04 further requires that

the Examiner may not reopen prosecution after appeal without written approval by the

Supervisory Patent Examiner (SPE). In the case, the Examiner's supervisor Saleh Najjar

or another SPE did not appear to sign the reopening of prosecution on the Office Action mailed July 24, 2009. Appellant respectfully submits that the reopening of the prosecution is also inappropriate for this additional reason.

For at least this additional reason, the Appeal should be reinstated as the reopening of the prosecution does not appear to have the requisite approval specified in MPEP 1207.04.

c. THE RESTRICTION REQUIREMENT IS IMPROPER AS THERE IS NO SERIOUS SEARCH AND EXAMINATION BURDEN UPON THE EXAMINER

Even if considered under MPEP 1207.04, the restriction requirement requested by the Examiner is improper. A restriction requirement is not proper if the search and examination burden upon the Examiner is not serious and none of the following tests from MPEP 808.02.04(a) are true.

(A) Separate classification thereof: This shows that each invention has attained recognition in the art as a separate subject for inventive effort, and also a separate field of search. Patents need not be cited to show separate classification.

(B) A separate status in the art when they are classifiable together: Even though they are classified together, each invention can be shown to have formed a separate subject for inventive effort when the examiner can show a recognition of separate inventive effort by inventors. Separate status in the art may be shown by citing patents which are evidence of such separate status, and also of a separate field of search.

(C) A different field of search: Where it is necessary to search for one of the inventions in a manner that is not likely to result in finding art pertinent to the other invention(s) (e.g., searching different classes/subclasses or electronic resources, or employing different search queries, a different field of search is shown, even though the two are classified together. The indicated different field of search must in fact be pertinent to the type of subject matter covered by the claims. Patents need not be cited to show different fields of search.

Where, however, the classification is the same and the field of search is the same and there is no clear indication of separate future

classification and field of search, no reasons exist for dividing among independent or related inventions.

In the instant case, Claims 1-28 are all in the single Class/subclass of 709/221 and concern a method and system for adding or removing a storage controller node in a storage area network. It appears that the classification and field of search is the same and there is no clear indication of separate future classification and field of search. The Examiner has also provided no reason for dividing the claims into independent or related inventions. Moreover, since the Examiner has already successfully performed searches and submitted Office Actions mailed on September 24, 2007 and May 13, 2008, there would appear to have been no serious burden in performing the search and examination.

For at least these reasons, the restriction requirement is improper and the appeal should be reinstated before the Board for consideration.

B. **CLAIMS 1 TO 28 SHOULD BE ALLOWED AS THE EXAMINER HAS FOUND APPLICANT'S ARGUMENTS PERSUASIVE AND NO FURTHER REJECTIONS PROVIDED**

    a. **EXAMINER HAS FOUND CLAIMS 1-28 TO BE PATENTABLY DISTINCT OVER BLUMENAU AND CITED ART IN VIEW OF APPLICANT'S ARGUMENTS**

The Examiner has found Appellant's arguments persuasive and the claims as filed to be patentably distinct over Blumenau and other cited art. (Office Action Jul 24, 2009, page 2, paragraph 1) Since the Examiner admits that Blumenau does not teach, suggest or describe the individual limitations found in Claim 1 it would follow that claims 1-28 are in condition for allowance at least because every element of independent Claim 1 are not taught by any of the cited references. See Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2D (BNA) 1913, 1920 (Fed. Cir.), cert. denied, 493 U.S. 853, 107 L. Ed. 2d 112, 110 S. Ct. 154 (1989) (explaining that an invention is anticipated if every

element of the claimed invention, including all claim limitations, is shown in a single prior art reference). See Jamesbury Corp. v. Litton Industrial Products, Inc., 756 F.2d 1556, 1560, 225 USPQ 253, 256 (Fed. Cir. 1985) (explaining that the identical invention must be shown in as complete detail as is contained in the patent claim).

Accordingly, Appellant respectfully submits the Board find that Claims 1-28 are in condition for allowance as there are no substantive rejections remaining and no reason to withhold letting these claims go to allowance and issue.

VIII.   CONCLUSION

Appellants respectfully submit that they have demonstrated that reopening of prosecution is improper and the appeal should be reinstated. Further, since the Examiner has been persuaded that the cited references do not teach or suggest each and every element of the pending claims 1-28 then they should be considered in condition for allowance and subsequent issuance in a patent.

For at least the reasons discussed above, Appellant requests that the Board of Appeals remand to the Examiner that claims 1-28 should be in put in immediate condition for allowance.

IX.   EVIDENCE APPENDIX

None.

X.   RELATED PROCEEDINGS APPENDIX

None.

Respectfully submitted,

Date:___11/24/2009_____   _____/Leland Wiesner/_____

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CLAIMS APPENDIX A

What is claimed is:

1. A method for adding a storage controller node in a storage area network, comprising:

receiving a storage controller node to add to a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports;

adopting the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller; and

renumbering a set of ports associated with the storage controller to extend the sequence of logical ports associated with the logical storage controller.

2. The method of claim 1 further comprising:

generating configuration information reflecting the additional storage controller added to the logical storage controller and the set of ports added to the corresponding sequence of logical ports; and

distributing the configuration information to one or more storage controllers associated with the logical storage controller.

3. The method of claim 1 wherein the logical nodename associated with the logical storage controller is derived from a predetermined nodename associated with one storage controller.

4. The method of claim 1 wherein the predetermined nodename from the first storage controller added to the logical storage controller is used for the logical nodename.

5. The method of claim 1 wherein the logical nodename is a unique world wide node name (WWN).

6. The method of claim 1 wherein the sequence of logical ports is a contiguous numeric sequence of ports generated as sets of ports from each storage controller are added to the

logical storage controller.

7.   The method of claim 1 wherein each storage controller in the logical storage controller communicates with each other over an external communication link.

8.   The method of claim 1 wherein each storage controller added to the logical storage controller is designated a role selected from a set of roles including: a primary storage controller, a secondary storage controller and a alternate storage controller.

9.   The method of claim 8 wherein the secondary storage controller performs tasks assigned to the primary storage controller when the primary storage controller experiences a failure.

10.   The method of claim 2 wherein the configuration information generated includes metadata describing the geometry of one or more volumes of data managed by the logical storage controller.
11.   The method of claim 10 wherein the metadata information is selected from a set including: number of physical devices, physical device identifiers, ranges of blocks on the physical devices and total number of blocks.

12.   The method of claim 2 wherein distributing the configuration information is performed using an application programming interface compatible with one or more databases.

13.   A method of removing a storage controller node in a storage area network, comprising:
      removing a storage controller node from a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports;
      deleting the set of ports associated with the storage controller removed from the sequence of logical ports associated with the logical storage controller; and
      renumbering the sequence of logical ports to accommodate the deleted set of

ports.

14.   The method of claim 1 further comprising:

generating configuration information reflecting the deleted storage controller removed from the logical storage controller and the set of ports removed from the corresponding sequence of logical ports; and

distributing the configuration information to one or more storage controllers associated with the logical storage controller.

15.   An apparatus for adding a storage controller node in a storage area network, comprising:

a processor capable of executing instructions;

a memory containing instructions when executed on the processor receive a storage controller node to add to a logical storage controller having a logical nodename and a sequence of logical ports in the storage area network, adopt the logical nodename from the logical storage controller in place of the predetermined nodename associated with the storage controller and renumber a set of ports associated with the storage controller to extend the sequence of logical ports associated with the logical storage controller.

16.   The apparatus of claim 15 further comprising instructions that generate configuration information reflecting the additional storage controller added to the logical storage controller and the set of ports added to the corresponding sequence of logical ports and distribute the configuration information to one or more storage controllers associated with the logical storage controller.

17.   The apparatus of claim 15 wherein the instructions derive the logical nodename associated with the logical storage controller from a predetermined nodename associated with one storage controller.

18.   The apparatus of claim 15 wherein the instructions use the predetermined nodename from the first storage controller added to logical storage controller for the logical

nodename

19.   The apparatus of claim 15 wherein the logical nodename is a unique world wide node name (WWN).

20.   The apparatus of claim 15 wherein the sequence of logical ports is a contiguous numeric sequence of ports generated as sets of ports from each storage controller are added to the logical storage controller.

21.   The apparatus of claim 15 wherein instructions in each storage controller in the logical storage controller communicate with each other over an external communication link.

22.   The apparatus of claim 15 wherein instructions designate a role to each storage controller added to the logical storage controller selected from a set of roles including: a primary storage controller, a secondary storage controller and an alternate storage controller.

23.   The apparatus of claim 22 wherein the secondary storage controller performs tasks assigned to the primary storage controller when the primary storage controller experiences a failure.

24.   The apparatus of claim 16 wherein the instructions that generate the configuration information includes metadata describing the geometry of one or more volumes of data managed by the logical storage controller.

25.   The apparatus of claim 16 wherein instructions selected the metadata information from a set including: number of physical devices, physical device identifiers, ranges of blocks on the physical devices and total number of blocks.

26.   The apparatus of claim 16 wherein instructions perform distribution of the configuration information using an application programming interface compatible with one or more databases.

27.   An apparatus for removing a storage controller node in a storage area network, comprising:

        a processor capable of executing instructions;

        a memory containing instructions when executed on the processor remove a storage controller node from a logical storage controller in the storage area network having a logical nodename and a sequence of logical ports, delete the set of ports

associated with the storage controller removed from the sequence of logical ports associated with the logical storage controller ands renumber the sequence of logical ports to accommodate the deleted set of ports.

28. The apparatus of claim 27 further comprising instructions that generate configuration information reflecting the deleted storage controller removed from the logical storage controller and the set of ports removed from the corresponding sequence of logical ports and distribute the configuration information to one or more storage controllers associated with the logical storage controller.